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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1746	16

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/976,024	STRATFORD ET AL.	
	Examiner	Art Unit	
	Sharidan Carrillo	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 24-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 is indefinite because it is unclear what one of ordinary skill in the art would consider as "cleaner flow". Claim 26 is indefinite because it is unclear the structural relationship between the mold ejection mechanism and the injection mold.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trampusch (5932026) in view Settles (5785581) and Opel et al. (5520572) and further in of Swain et al. (5125979).

Trampusch teaches a method of cleaning an inner wall of a mold using dry ice in a carrier gas medium. In reference to claims 24 and 26, Trampusch teaches opening a mold (col. 3, lines 12-15), producing dry ice granules from a supply unit 15, and positioning a nozzle tip 4 to deliver dry ice to the surface of the mold (col. 7, lines 10-20).

Trampusch fails to teach maintaining a gas to dry ice ratio as specified in claims 24 and 27. Settles teaches it is desirable to maintain an ice/gas mass flow rate ratio of as high as 1, so that the maximum possible kinetic energy is extracted from the gas stream and imparted to the particles (col. 11, lines 1-10). Settles teaches a ice/gas ratio having a value of up of 1. The claimed ratio of gas/dry ice of 2 and 3.5 would be equivalent to a dry ice/gas ratio of ½ and 1/3, which would therefore read on the teachings of Settles.

It would have been obvious to a person of ordinary skill in the art to have modified the method of Trampusch to include maintaining a ice/gas flow rate ratio, as taught by Settles, for purposes of imparting kinetic energy from the gas stream to the ice particles.

In reference to claims 24 and 28-29, Trampusch fails to teach maintaining a flow rate and producing dry ice granules having the claimed diameter size. Opel et al. teach an apparatus for producing carbon dioxide granules. In col.6, lines 35-40, Opel et al. teach a control valve 66 of maintaining a desired flow rate for acceleration of the granules in a gas stream. In col. 9, lines 15-20, Opel et al. teach producing granules having a size between 0.015-0.045 inches in order to perform efficient and uniform treatment of delicate workpiece surfaces (col. 3, lines 40-45).

It would have been obvious to a person of ordinary skill in the art to have modified the modified method of Trampusch to include maintaining a desired flow rate, as taught by Opel et al. for purposes of accelerating the granules in a gas stream. It would have been obvious to a person of ordinary skill in the art to have modified the modified method of Trampusch to include producing dry ice granules having diameters between 0.015-0.045 inches, as taught by Opel et al., for purposes of performing efficient and uniform treatment of delicate workpiece surfaces.

In reference to claims 25 and 30, Trampusch et al., as modified by Settles and further in view of Opel et al. fail to teach maintaining the specific distance of the nozzle from the surface. However, it would have been within the level of the skilled artisan to adjust the positioning of the nozzle tip from the surface since Trampusch et al. teach controlling the movement of the cleaning nozzle by a control unit. Further, one of ordinary skill in the art would have recognized the advantages of adjusting the position of the nozzle tip for purposes of providing and ensuring effective cleaning of the mold surface.

Trampusch, as modified by Settles and further in view of Opel et al. teach the invention substantially as claimed with the exception of the gas flow rate as recited in claim 24. Swain et al. teach a method and apparatus for cleaning using carbon dioxide snow. In col. 7, lines 60-65, Swain et al. teach that excellent cleaning velocities are achieved when the flow rate is set to 14 SCFM.

It would have been obvious to a person of ordinary skill in the art to have modified the modified method of Trampusch to include adjusting the flow rate, as taught by Swain et al., for purposes of achieving excellent cleaning velocities.

Trampusch, as modified by Settles, Opel et al., and Swain et al. fail to teach the flow rate of 25 SCFM. However, et al. Swain et al. teach the desire to increasing the kinetic energy of the snowflakes in order to achieve greater scrubbing effectiveness.

It would have been obvious to a person of ordinary skill in the art to have modified the modified method of Trampusch to include increasing the flow rate, as taught by Swain et al., for purposes of achieving greater scrubbing effectiveness.

Response to Arguments

6. Applicant argues that Settles teaches frozen water granules as opposed to dry ice. Applicant's arguments are unpersuasive since Settles e al. teach a cryogenic fluid in combination with water. Further, it is notoriously well in the art that cryogenic fluids include for example liquid carbon dioxide which form dry ice. Further, col. 1, lines 50-65 and col. 2, lines 45-50, Settles et al. teaches dry ice.

7. Applicant argues that Settles fail to teach the gas mass flow ratio as high as 1. Applicant is directed to col. 11, lines 1-17.

8. Applicant argues that there is no motivation to combine the dry ice particles of Opel and the small particles of Settles. Applicant's arguments are unpersuasive since it is the prior art of Trampush and not Opel that is being modified by the teachings of Settles. Additionally, Settles et al. teach that the size of the water droplets can be varied to suit the user's purpose.

9. Applicant further argues that Settles fails to teach the flow rate. Applicant is directed to the teachings of Swain to cure the deficiency.

10. Applicant's arguments filed 9/9/03, have been considered but are unpersuasive for the reasons recited above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 703-308-1876. The examiner can normally be reached on Monday-Friday, 6:00a.m-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on 703-308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7719 for regular communications and 703-305-7719 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Sharidan Carrillo
Primary Examiner
Art Unit 1746

bsc
September 17, 2003

SHARIDAN CARRILLO
PRIMARY EXAMINER